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Abstract

The great recession, and the countercyclical responses by European governments that followed, triggered an extensive wave of fiscal adjustments. The implementation of these austerity measures, although underpinned by a widespread consensus, underwent severe criticism. While their effects on output and employment have been extensively investigated, their impacts on wage inequality have received relatively less attention. In this paper we focus on the consequences of austerity measures on gender wage inequalities. After having described the literature-based conceptual framework of our analysis, we provide empirical evidence on the effects of austerity measures on: (i) the adjusted gender wage gap; and (ii) the patterns of gender horizontal segregation. The analysis covers the group of EU-28 countries in the years from 2010 to 2013. Results show that austerity measures (both tax-based and expenditure-based) impacted significantly on various sides of gender wage inequality, putting at risk the relatively little progress achieved in Europe so far.

Keywords: austerity, gender wage inequality, gender segregation, EU-28
JEL Classifications: J16, J31, E62, O52

1. Introduction

As a response to the recent economic crisis, in particular high public sector deficits and sovereign debt problems, many European Union countries implemented fiscal consolidation programs. The largest ones have been introduced in the 2010-2012 period in Hungary, Latvia, Greece, Ireland, Spain and Portugal (Theodoropoulou and Watt, 2011). Although austerity packages differed size and structure, most of them included measures on the expenditures side, in the form of cuts in public sector wages and employment or in public services; some countries embraced policies on the revenue side, such as value added tax hikes. The effectiveness of fiscal consolidation policies on growth has been extensively questioned, as were their effects on the labour market, on inequality and on social stability.

The austerity debate traces back to the origins of economic thinking and, being related to the desirable size of the state intervention into the economy, represents a crucial side of the juxtaposition of ideological and theoretical approaches. Konzelmann (2014) provides a thorough and exhaustive overview of the austerity debate over the history of economic thinking, starting from the different, historically based, positions of classical economist such as Malthus, Ricardo and Marx, going through the neoclassical school, the Keynesian era and the growing dominance, starting from the 70s, of the neo-liberal ideology. Based on the latter, policy intervention aimed at achieving full employment has been progressively marginalised while austerity has growingly been regarded as a crucial mean to facilitate, via price stability, the macroeconomic equilibrium. Despite the questionable results obtained by neo-liberal policies in favouring growth patterns, support for austerity packages gained strength and materialized, right after emergency monetary policies, as the common response to the great recession. Some influential studies provided the justification for their widespread adoption; illustrative examples include the evidence that excessive debt is detrimental to growth (Reinhart and Rogoff, 2009) or that fiscal consolidation has an expansionary effect by increasing private sector confidence, in a Ricardian equivalence logic (Alesina and Ardagna, 2010). These findings received severe criticism in the following years (see, e.g., Herndon *et al*., 2014; Kinsella, 2012; Considine and Duffy, 2016), with a number of studies even showing that austerity aggravated the effects of the recession and hit asymmetrically the weakest social and economic groups (Crotty, 2012; Donald *et al.*, 2014). In this context, the impact of fiscal consolidation on gender inequalities represents a particularly interesting perspective of analysis and is the focus of this paper.

The crisis is reported to have hit disproportionally male employment, being its effects more direct on the male-dominated private sectors of manufacturing, construction and specific financial branches (Perivier, 2016). However, what was first seen as he-cession soon after moved to sh(e)austerity (Karamessini and Rubery, 2014). Austerity measures developed in response to the crisis might have indeed impacted more women than man, given the policy focus on the reduction of wages and employment in the public sector, where women normally make the majority of workforce. Some countries have introduced means-testing for benefits for which women previously had independent access, reduced the amount of existing child benefits or abolished them

completely. This is placing an increasing burden on women to manage household budget, especially for lone mothers (Rubery, 2015a). Moreover, cut in social services and welfare provisions such as childcare services and elderly care are expected to have more adverse effects on female employment at least in two ways. First, women are predominantly employed in these types of jobs, which affects their overall employment rates. Secondly, given women's role as primary care givers, there is a high probability that they will be the ones to leave the job or shift to part-time employment when care services are in short supply. Most of austerity packages also included cut in pensions, penalised access to early retirement and postponed the retirement age. Reducing income support for the old age is of prime concern for women, given that in the majority of EU member states women aged 50 to 69 form a larger proportion of those receiving a pension compared to men (EIGE, 2015).

The pre-crisis period saw the erosion of the male breadwinner model that was further accelerated during recession (Karamessini, 2014a; Addabbo *et al.*, 2015) as male employment was on decline while, unlike in other crisis episodes, women showed far greater attachment to the labour market. However, income losses steaming from either employment, benefits or pensions during the austerity episodes, coupled with reduced support for work/family reconciliation policies, are expected to reduce female bargaining power within the household and reinforce patriarchal family structures (Perivier, 2016).

In examining the effects of austerity measures on gender inequality, most of the to date literature has been dealing with the impact on employment. Their consequences on wage inequality have received relatively less attention, with several papers looking only at the raw gender pay gap, i.e., the simple difference in average hourly earnings between men and women. The aim of this paper is to assess the impact of austerity policies on the gender wage gap adjusted for the labour market characteristics of man and women. In that regard, we aim to investigate what is the impact of austerity on pure discrimination practices and on the patterns of gender horizontal segregation. While the available evidence suggests that sectorial segregation has sheltered women from job losses in times of crisis, this paper intends to analyse if austerity measures reduced the chances for female workers to be employed in better-paid jobs.

The analysis covers the group of EU-28 countries in the years from 2010 to 2013 and makes use of the European Union Survey on Income and Living Conditions (EU-SILC).

The structure of the article is the following. After this introduction, the next section provides an overview of the evidence available so far in the literature and a discussion on the possible gender impacts of austerity policies. The third section illustrates the datasets and the variables used and provides some descriptive evidence on: (i) the levels and components of the gender wage gap in Europe; (ii) the austerity measures implemented in the period considered. In section four we present the econometric methods, the empirical model and our results. Section five discusses the results and concludes.

2. Crisis, austerity and gender inequalities

A vast literature addressing the effects of the economic crisis on men and women exists and its comprehensive review is beyond the scope of this paper. Instead, the next few paragraphs provide a brief summary of the central issues raised in this literature which prove to be important in understanding women's vulnerability to both recession and austerity.

The position of men and women in the labour market, reflected in the level of sectorial and occupational segregation, is seen as critical in understanding the consequences of the great recession**.** As the crisis hit sectors where male workforce was predominantly employed, such as construction, manufacturing and certain financial branches, gendered effect of the economic downturn materialised into male employment rates falling sharply (by 3 to 4 percentage points) at the EU27 level in the period 2008 – 2012 (Rubery, 2015b). The fall in the female rate was much more limited, up to 1 percentage point. Unemployment rate for women also experienced less sharp increase than for men during the crisis, but accompanied by a slower return to pre-crisis values when the recovery stepped in. The combined effects of employment and unemployment flows resulted in an increase in male inactivity rates and in a slight reduction in female ones. This caused a fall in all gender disparities in the EU 27 in 2012 – in employment, unemployment, activity rates, and poverty. However, it has been emphasised that this was not to be regarded as a sign of improvement in gender equality, but rather as the fact that men have moved closer to women's vulnerable positions due to deteriorated labour market conditions (Bettio and Verashchagina, 2014; Perugini, 2016). Higher shares of men in more precarious jobs also brought the convergence in terms of the narrowing gender gaps in part-time and temporary work in Italy, Portugal and Ireland (Addabbo *et al.*, 2015; Ferreira 2014), and Spain (Gonzales Gago and Segales Kirzner, 2014). In examining how solid is the evidence that the level of segregation contributed to lower female exposure to the crisis, Bettio and Verashchagina (2014) found a statistically significant negative correlation across countries between sectorial and occupational segregation and job losses suffered by women during the crisis for the EU 27. A relatively stronger correlation was found for the sectorial segregation although, they note, correlation does not need to indicate causality.

Austerity policies, targeted towards the public sector in which women are normally over-represented, are similarly supposed to produce gendered effect (Glasmeier and Lee-Chuvala, 2011). Over the 2008-2014 period, the workforce downsizing in key public sector industries of public administration, education and health ranged from 18% and 16% in Romania and Greece, respectively, 10% in Portugal and around 7% in Spain. Over the same period, in Ireland, women's employment fell more sharply than men's in public administration (- 7,8% compared – 3,7%) and rose less than for men in health and education. In the UK, the loss in full-time positions has been larger for women than for men in central government jobs: -22,4% and -20,8%, respectively (EPSU, 2016). While numerous studies have supported the hypothesis of he-cession, the literature that tries to determine how widespread is "she-austerity" in terms of job losses is still very limited. On a panel of eight EU countries with different welfare and gender regimes from 2008 to 2014, Perivier (2016) shows that the "he-cession to sh(e)austerity" scenario does not apply to all selected

countries. The paper also investigates what is the role of employment segregation in the effects of the crisis and of austerity policies on the employment gap. Greece and Spain are showed to be typical examples of the "he-cession to sh(e)austerity" scenario and the evolution of the gender employment gap throughout the whole period is mainly explained by sectorial segregation. UK and Denmark experienced slight she-cession. In UK, sectorial segregation had little or no role in the gendered impact of the austerity policies, while positive albeit small effect was found in Denmark. In France, Italy and Germany the impacts are not clear and changes in employment were even less pronounced. Sweden did not implement austerity measures, while the stimulus packages in the crisis period have benefited more men than women.

Evidence on the impact of austerity measures on the gender pay inequality is similarly quite scarce. Fulton (2011) shows that in Latvia women's pay in the public sector has fallen disproportionately as a result of austerity measures, which caused gender pay gap in the whole economy to rise from 15.2% in 2008 to 16.9% in 2011. In Romania, the gender pay gap widened from 7.8% in 2008 to 12.6% in 2010. However, the peak year in austerity in Romania was 2010, when public sector wages were reduced by 25% and the restructuring of public sector employment was so large that it represented over half of the number of total government positions eliminated in the entire EU (Stoiciu, 2012).

Besides these direct effects of austerity on gender gaps in employment and wages, fiscal consolidation policies could impact the quality of labour supplied by women and, via this channel, further increase gender inequality. Cutting budgets for care policies aimed at providing an alternative to women's unpaid labour, could negatively impact effort, flexibility and availability of female labour. In United Kingdom, a range of measure has been reducing support for children, pregnancy and childcare. There was a freeze in child benefits and working tax credits, a reduction in baby and pregnancy related grants, and pressure was exerted on lone mothers (as benefit recipients) to increase their effort in finding a job despite a context of high female unemployment (Rubery and Raferty, 2014). The design of a universal tax credit, that replaced six different benefits, is predicted to decrease labour market incentives for second earners in couples, most of them being women. This is likely to turn into a challenge to financial security and independence of women, reverting the process of welfare systems modernisation shaped around the single earner family model and paving the way for a return of the traditional, male-centred one (MacLeavy, 2011). The UK government also reduced the childcare element of tax credits from 80% to 70%, despite previous evidence showing that the cost of childcare already made work difficult to afford for many low earning women and completely unaffordable for low earning single mothers (Annesley, 2014). Similarly, in Iceland, fees for child-related services have been raised remarkably and the amount paid during parental leave cut three times since the outburst of the crisis, resulting in a reduced uptake of it (Thorsdottir, 2014*)*. In Spain, new born child benefits were eliminated, plans to invest in pre-primary school infrastructure cancelled and significant cuts in long-term care introduced (Gonzales Gago and Segales Kirzner, 2014); in Italy austerity has paused the initiative of expanding child care services (Verashchagina and Capparucci, 2014) leading to further constraints on mothers'

labour supply with a negative impact on women's employment in all sectors (Addabbo *et al.*, 2015). In Greece, reduction of state budget allocations to municipalities caused great lack of staff in social care services and closing down of childcare facilities (Karamessini, 2014b). Portuguese government intensified means testing, reduced coverage of certain benefits and cut family allowances (Ferreira, 2014). In Ireland, there were multiple cuts to child benefits paid directly to mothers; carers' allowances claimed mainly by women looking after elderly or disabled relatives were reduced and the contraction in social services resulted in fewer special needs assistance and less public nursing home places (Barry and Conroy, 2014).

Austerity measures developed in response to the crisis have therefore led to a retrenchment of the welfare state in child care and long-term care services, which put pressure on families to provide informal welfare support, usually materialising in the form of female unpaid labour. This could have affected the flexibility of female labour supply, reduced women's chances to be employed in better-paid sectors and, in the longer term, even challenged the achieved levels of integration into the labour market. While sectorial segregation has reduced the vulnerability of women in the recession period, its particular features - women's greater reliance on the public sector, that is everywhere considered as less affected by discriminatory practices and that has started shrinking during the fiscal consolidation phase – also likely reduced the achieved levels of overall gender equality and endangered women's emancipation and autonomy through a more limited contribution of women to household income (Ferreira, 2014).

Based on all these considerations, it is plausible that fiscal consolidation plans significantly weakened the position of women in the labour market by imposing them, via widespread cuts in care services, heavier family working loads. The resulting lower effort, availability, flexibility and continuity that women are presumably able to offer might have fed an adjustment downwards of employers expectations with regards to their average expected level of productivity. Along with the consequent expectations of higher variability of productivity for women and in conditions of incomplete information on the characteristics of individual workers, this might have increased the scope for the so-called *statistical* discrimination on the labour market (Phelps, 1954). In the absence of complete information on individual counterparts, the employers, relying on group average characteristics, reacted to the expected higher variability and lower levels of women's productivity by paying lower wages or limiting their access to high-pay jobs (which normally require more flexibility, continuity and effort). Under this perspective, austerity episodes might have the potential to become significant turning points for gender relations, employment and welfare states. This can be particularly the case in countries where the move away from the traditional patriarchal family structure and towards a dual earner model is more recent and where social norms and attitudes towards the women's role in the family and economy are not firm enough to resist cyclical policy changes (Rubery, 2014, p 23).

3. Data, variables and preliminary descriptive evidence

3.1 Data and variables

Our empirical analysis covers the 28 EU member countries in the years from 2010 to 2013 (2011-2014 cross-section releases of the European Union Statistics on Income and Living Conditions - EU-SILC). The number of individuals, aged between 16 and 65 years, included in the total sample is 1,304,520. Of them, 677,702 are employed as dependent workers and are the object of our empirical analysis on the gender wage gap and on the impact of austerity measures (see table 1 and A1 in the appendix for the country/year details). The remaining 626,818 individuals (not in employment, in education, self-employed or retired) are used in the estimates to account and correct for sample selection bias. Due to the well-known challenges posed by self-employment in terms of income data availability and reliability, we decided not to include this segment of the labour market in our analysis.

Employees' income (variable PY010G) is defined as the gross total (yearly) remuneration, in cash or in kind, payable by an employer to an employee in return for the work done in the reference period. It includes wages and salaries paid in cash, holiday payments, thirteenth month and overtime payment, profit sharing, bonuses and productivity premia, allowances paid for transport or for working in remote locations, as well as the social contributions and income taxes payable by employees. The use of gross wages is common in the literature that considers within-countries wage and earnings inequality (Antonczyk *et al.*, 2010) and employs EU-SILC data (Brandolini *et al.*, 2010). In order to account for differences in hours worked, we computed all earning measures on hourly basis using the information on the number of hours usually worked per week in the main job and the number of months spent at work. Top and bottom 1% of the hourly wage distributions in each country and year were trimmed in order to avoid distortions by outliers. All monetary values are expressed in 2015 Euro PPPs.

As explanatory variables of wages, besides the gender of the worker, we use a large set of individual information which include: education (primary, secondary and tertiary, corresponding to the ISCED classification levels 0-2, 3-4, and 5-6, respectively), employment status (temporary or permanent), age (and its square), marital status, self-reported health status (on a 1-very good to 5-very bad scale), place of residence (urban/non-urban region), presence of a second job, control for part-time employment, type of occupation, sector and size of the firm in which the individual is employed[1].

[1] Occupations are classified into nine categories, corresponding to the major groups of the ISCO 08 classification: 1. Managers, 2. Professionals, 3. Technicians and Associate Professionals, 4. Clerical Support Workers, 5. Services and Sales Workers, 6. Skilled Agricultural, Forestry and Fishery Workers, 7. Craft and Related Trade Workers, 8. Plant and Machine Operators and Assemblers, 9. Elementary Occupations. Workers in Armed Forces Occupations, consisting of a very limited number of individuals, have been aggregated into category 2. Industry breakdown has been limited to thirteen sectors, obtained as an aggregation of the NACE sections: 1. Agriculture (section A), 2. Industry (B-E), 3. Constructions (F), 4. Trade (G), 5. Transports (H), 6. Hotels and Restaurants (I), 7. Information and Communications (J), 8. Financial and Insurance Activities (K), 9. Real Estate, Professional and Administrative Activities (L-N), 10. Public Administration (O), 11.

As regards the identification of austerity measures, we adopt here the conventional approach based on the use of the cyclically adjusted primary balance (CAPB). Changes in the cyclically adjusted budget balance have been extensively used in the literature to identify fiscal consolidation episodes; earlier studies (e.g., Alesina and Perotti, 1995 and 1997; Alesina and Ardagna, 1998) made use of the so-called Blanchard index (calculated assuming unchanged unemployment rate with respect to the previous year). More recent contributions (e.g., Tsibouris *et al.*, 2006; Molnar, 2012; Perivier, 2016), prefer CAPB-based measures, after having acknowledged its shortcomings. They are primarily related to the fact that CAPB might reflect one-offs (Koen and van den Noord, 2005), growth surprises (Larch and Salto, 2005) and fluctuations on the revenues side due to the dynamics of asset prices (Girouard and Price, 2004). As explained by Gujardo *et al.* (2014), changes in cyclically adjusted fiscal variables might also incorporate developments affecting total output that are not related to discretionary policy changes. In analyses aimed at identifying the expansionary/contractionary effects of fiscal consolidations, this poses a serious issue of identification: a boom in the stock market, for example, not only improves the CAPB, but is also likely to boost consumption and investments, therefore downplaying the contractionary effects of fiscal consolidations. Similarly, the policy measure could be targeted at reducing the risk of overheating, posing a severe reverse causality issue. In order to overcome these shortcomings, the literature suggests an alternative approach, based on the identification of changes in fiscal policy directly from historical documents (see, for examples, Romer and Romer, 2010; Devries et al., 2011; Gujardo *et al.*, 2014, and the references cited therein). In our case, the large number of countries/years considered limits the feasibility of this narrative approach; at the same time, the focus of our study (impact of fiscal consolidation on the gender gap, instead of growth) lessens the importance of identification and reverse causality issues. To address the remaining concerns (distortionary effects of cut-offs), in accordance with the OECD definition of underlying primary balance, we adjust the CAPB for the effects of one-off budget operations (typical examples of them are tax amnesties or revenues from privatizations). Our source of data is the Ameco database[2], which provides for the EU countries information on the structural (i.e., net of one-offs and temporary measures) balance of general government (excluding interests), with cyclical adjustment based on potential GDP excessive deficit procedure (see Mourre *et al.*, 2003). Data for this measure of CAPB for the EU-28 countries are directly available in the Ameco website starting from 2010; for previous years, the datasets provides separated information on cyclically adjusted revenues and expenditures (excluding interest), but not on one-offs and temporary measures. However, since according to our conceptual framework the effects of austerity measure on the GWG might be lagged one or more years, we also need information on fiscal consolidations implemented prior to 2010 (see section 4). We therefore reconstructed the CAPB change using the data on one-off

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Education (P), 12. Health and Social Work Activities (Q), 13. Other services (R-U). Lastly, we consider three firm size classes: 0-10, 11-49, 50 and over employees.

[2] See: http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm

measures derived from OECD (2016)[3] to correct the cyclically adjusted revenues and expenditures data provided in AMECO for the years 2006-2009.

3.2 The gender wage gap in EU-28 and its components

Prior to the investigation of the effects of austerity, we present some descriptive evidence on the gender wage gap levels and trends in the EU-28. In order to assess the gender wage gap and its components, we use a standard twofold Blinder-Oaxaca approach (Oaxaca, 1973). The decomposition, based on separate earnings equations for women and men, splits the difference in the average (log) hourly wages between men and women (the unadjusted gender wage gap) [4], into the explained and the unexplained parts (Jann, 2008):

$$\underbrace{\bar{y}^M - \bar{y}^F}_{\substack{Unadjusted \\ pay\ gap}} = \underbrace{\left(\bar{X}_k^M - \bar{X}_k^F\right)' \hat{\theta}_k^*}_{\substack{Explained\ part \\ of\ the\ gap}} + \underbrace{\left(\bar{X}_k^{M\prime}\left(\hat{\theta}_k^M - \hat{\theta}_k^*\right) + \bar{X}_k^{F\prime}\left(\hat{\theta}_k^* - \hat{\theta}_k^F\right)\right)}_{\substack{Unexplained\ part\ of\ the\ gap \\ (adjusted\ pay\ gap)}}, \qquad k = 1, 2, \ldots K. \qquad [1]$$

where $\bar{y}^F$ and $\bar{y}^M$ are female and male log wages, $\bar{X}_k^F$ and $\bar{X}_k^M$ are the vectors of average female and male workers' and jobs characteristics (education, work experience, etc.); θ_k^F and θ_k^M are the returns to these characteristics from the two earnings equations; an $\hat{\theta}_k^*$ is the vector of reference coefficients (returns), introduced to estimate the explained and the unexplained part independently from the group viewpoint (Jann, 2008). We further follow Jann (2008) in using the coefficients from the pooled model for both genders (with gender included as a covariate) as the reference coefficients for the decomposition[5]. The first part of the right side in the equation 1, traditionally called the *explained part* (*endowments effect*), represents the differences in average labour market characteristics between the genders ($\bar{X}_k^M - \bar{X}_k^F$), weighted by the reference coefficients $\hat{\theta}_k^*$. If men have better labour market characteristics than women (e.g., higher average education, more working experience, etc.), a part of the unadjusted gap could be explained by higher values of these characteristics. However, if women have better labour market characteristics than men, this part would be negative and the differences in characteristics, instead of explaining, would actually hide the "true" size of the gap (Vladisavljević *et al.*, 2015).

The second part of the right side of the equation 1 is the *unexplained part* of the gap (*coefficients effect*), which represents the gender differences in returns to characteristics, weighted

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[3] See: http://www.oecd.org/eco/outlook/economic-outlook-annex-tables.htm

[4] Log transformations are usual in the analysis of wages, as they usually have asymmetric distribution and need to be transformed in order to perform parametric estimations. Additionally, the difference in log wages is approximately equal to per cent difference between the groups (e.g., Cameron and Trivedi, 2010, p. 86), which enables easier interpretation of results.

[5] We use STATA user-written *oaxaca* command (Jann, 2008). We opted for twofold pooled decomposition as its results are compatible with the estimation of the austerity effects. The estimated unexplained part of the gap in Table 1 for the pooled sample is therefore equal the estimate of the gender wage gap in Table 2 (first column).

by average male and female characteristics[6], but also the unobservable differences between the genders (Avlijaš *et al.*, 2013). This part is also called *adjusted gender wage gap*, as it represents the differences in wages between the genders for the same job/worker characteristics as described by the available information, and is often attributed to discrimination (Altonji and Blank, 1999).

The decomposition is estimated on the pooled data set for the 28 EU countries, for all four years (controlling for country and time effects), as well as for each year separately (controlling for country effects) (see Table 1). Additionally, we perform the same analysis at country level and present the levels of the adjusted wage gap in Table A1 in the Appendix. Besides gender, we control for age (and its square), marital and health status, urban/non-urban region of residence, education, permanent or temporary employment status, second job, part-time job position, sector of employment, occupation, and size of the firm. We also control for selection effects, as the selection of employees from the sample of working age individuals could be non-random and therefore produce biases in the estimation of the coefficients from the wage equations. In the field of gender studies, a growing literature has recognized that employed women tend to have - more often - characteristics normally associated to high wages (De la Rica et al., 2008; Heckman, 1979). As a consequence, low female employment rates may become consistent with low gender wage gaps simply because low-wage women would not feature in the observed wage distribution. Differences in participation in employment may result from a number of factors, especially at cross-country level (Albrecht *et al.*, 2009). They include differences in labour supply behaviour related to household structure or social norms, and in institutional settings such as unionization or minimum wages (Olivetti and Petrolongo, 2008). To account for the selection effects we use a correction based on the Heckman two-stage method (Heckman, 1979). We first estimate the first stage participation equation, separately for each country, year and gender. In addition to the already described personal characteristics (age, marital and health status, settlement and education), we add variables related to household structure that we were able to build considering the information available in EU-SILC. They refer to the household size and to the number of children (less than 3, 4-6 and 7-15 years old) and of elderly (65-74 and over 75 years old). Based on the estimates from the probit equation we compute the inverse Mills ratio (IMR) as a ratio between the probability density function to the cumulative distribution function of a distribution (Wooldridge, 2002). In the second step we add the IMR and its square to the list of the covariates in the Blinder-Oaxaca distribution (equation 1).

The difference in log hourly wages between the genders, which equals the unadjusted gender wage gap, is estimated at 13.6 per cent, with large variations across countries: from below 6 per cent in Lithuania, Slovenia and Poland, to above 25 per cent in Cyprus, Estonia and Denmark.

[6] In the pooled specification the differences are split into two components: differences in male and reference coefficients, weighted by male characteristics $\bar{X}_k^{M\prime}\left(\hat{\theta}_k^M - \hat{\theta}_k^*\right)$ and differences in female and reference coefficients, weighted by female characteristics $\bar{X}_k^{F\prime}\left(\hat{\theta}_k^* - \hat{\theta}_k^F\right)$.

The gap was relatively stable between 2010 and 2013 (Table 1) and the same holds for the majority of countries[7].

Table 1. Blinder-Oaxaca decomposition of the gender wage gap (pooled sample, EU-28 countries)

	Overall		2010		2011		2012		2013	
Male log wages	2.435***	*(0.001)*	2.434***	*(0.002)*	2.436***	*(0.002)*	2.435***	*(0.002)*	2.436***	*(0.002)*
Female log wages	2.299***	*(0.001)*	2.298***	*(0.002)*	2.300***	*(0.002)*	2.299***	*(0.002)*	2.300***	*(0.002)*
Difference	0.136***	*(0.002)*	0.136***	*(0.003)*	0.137***	*(0.003)*	0.136***	*(0.003)*	0.137***	*(0.003)*
Explained	-0.027***	*(0.002)*	-0.029***	*(0.003)*	-0.029***	*(0.003)*	-0.026***	*(0.003)*	-0.024***	*(0.003)*
Unexplained	0.163***	*(0.001)*	0.165***	*(0.002)*	0.166***	*(0.002)*	0.162***	*(0.002)*	0.160***	*(0.002)*
Explained part										
age	-0.006***	*(0.000)*	-0.006***	*(0.000)*	-0.006***	*(0.000)*	-0.006***	*(0.000)*	-0.006***	*(0.000)*
health	0.001***	*(0.000)*	0.001***	*(0.000)*	0.000***	*(0.000)*	0.000***	*(0.000)*	0.001***	*(0.000)*
urban	-0.001***	*(0.000)*	-0.001***	*(0.000)*	-0.001***	*(0.000)*	-0.001***	*(0.000)*	-0.001***	*(0.000)*
married	0.001***	*(0.000)*	0.000***	*(0.000)*	0.001***	*(0.000)*	0.001***	*(0.000)*	0.001***	*(0.000)*
edu	-0.016***	*(0.000)*	-0.016***	*(0.000)*	-0.016***	*(0.000)*	-0.015***	*(0.000)*	-0.015***	*(0.000)*
occupation	-0.026***	*(0.001)*	-0.024***	*(0.001)*	-0.028***	*(0.001)*	-0.026***	*(0.001)*	-0.026***	*(0.001)*
sector	0.018***	*(0.000)*	0.014***	*(0.001)*	0.019***	*(0.001)*	0.021***	*(0.001)*	0.021***	*(0.001)*
temp1	0.003***	*(0.000)*	0.003***	*(0.000)*	0.002***	*(0.000)*	0.002***	*(0.000)*	0.003***	*(0.000)*
partime	-0.007***	*(0.000)*	-0.010***	*(0.001)*	-0.006***	*(0.001)*	-0.005***	*(0.001)*	-0.006***	*(0.001)*
secjob	-0.000***	*(0.000)*	-0.000	*(0.000)*	-0.000	*(0.000)*	-0.000**	*(0.000)*	-0.000	*(0.000)*
size	0.006***	*(0.000)*	0.006***	*(0.000)*	0.006***	*(0.000)*	0.005***	*(0.000)*	0.006***	*(0.000)*
IMR	0.001***	*(0.000)*	0.001***	*(0.000)*	0.001***	*(0.000)*	0.001***	*(0.000)*	0.001***	*(0.000)*
country	-0.000	*(0.001)*	0.004	*(0.002)*	-0.001	*(0.002)*	-0.003	*(0.002)*	-0.002	*(0.002)*
time	0.000***	*(0.000)*	-		-		-		-	
Observations	677,902		171,455		173,125		166,362		166,960	

*Note: Robust standard errors in parentheses. Unexplained part of the gap detailed analysis available upon request. ***, ** and * denote significance at the 1, 5 and 10 per cent level, respectively.*

The negative coefficient for the explained part of the gap in Table 1 (-0.027) indicates that the gender wage differences between cannot be explained by better characteristics of men. As a matter of facts, women have on average better characteristics than men, so the adjusted gender wage gap is higher than the unadjusted one. Similarly to the trends for the unadjusted gap, the explained part and the adjusted wage gap (both overall and by countries) vary very little over time (Figure 1)[8].

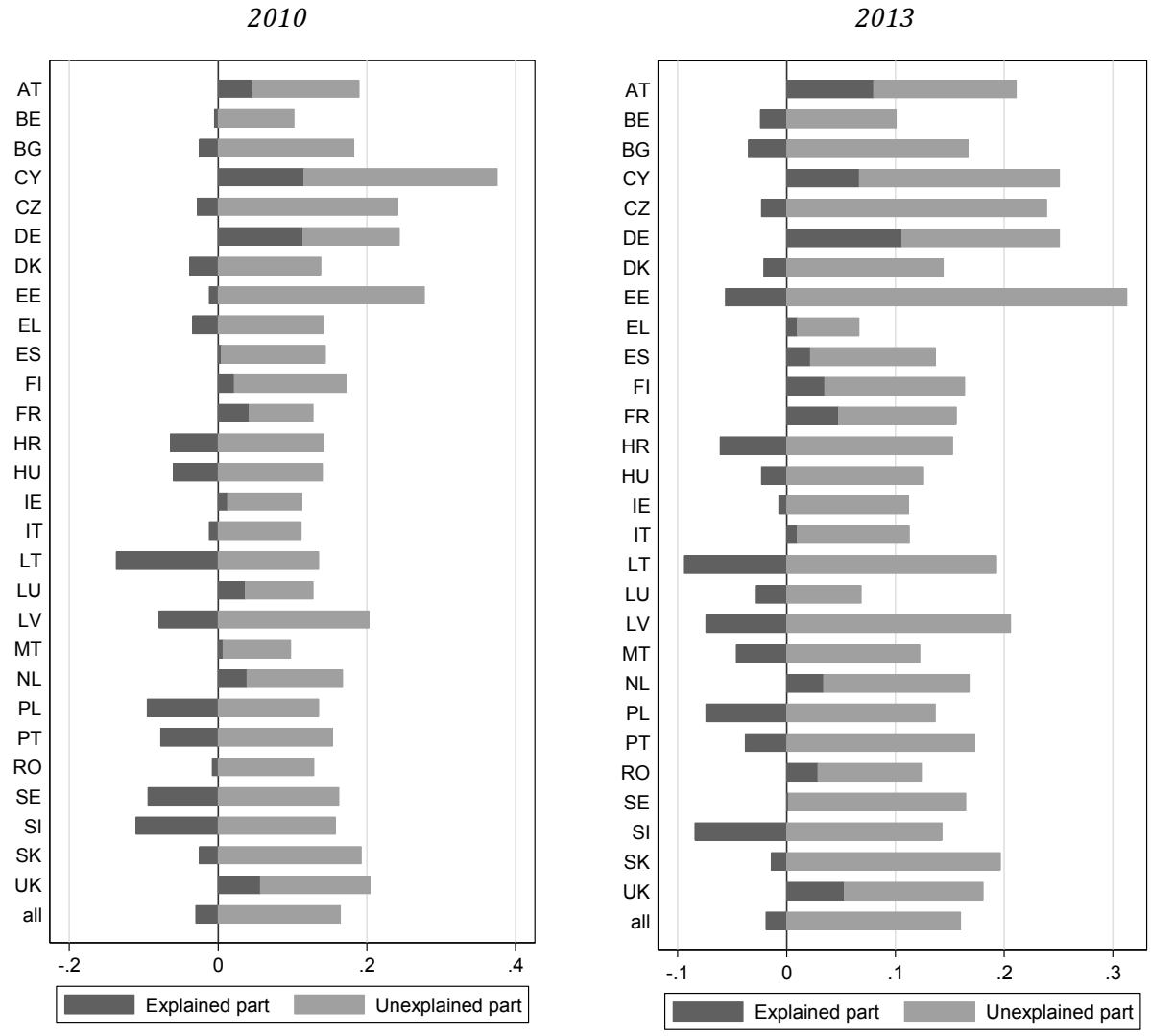
The negative sign of the explained part of the gap is also the result of differences in the decomposition between western economies and transition countries (Figure 1). Namely, in the

[7] The unadjusted gap increased in Lithuania (from 0 to 9.9 per cent), and decreased in Cyprus (from 37.6 to 25.1 per cent) and Luxemburg (from 12.8 to 4.1 per cent), while in all other countries the changes are not statistically significant. Detailed results of the BO decomposition country by country are not reported here but they are available upon request.

[8] The explained part of the gap decreased in Hungary (from -0.06 to -0.023) and in Sweden (from -0.094 to 0.002). On the other hand, the adjusted gender wage gap decreased in Cyprus (from 26 to 18.4 per cent) and in Greece (from 14.2 to 5.7 per cent). In all other countries the changes of the explained part or the adjusted wage gap are insignificant.

majority of the Central and Eastern European economies (Lithuania, Slovenia, Poland, Latvia, Croatia, Hungary, Bulgaria, and to a lesser extent in the Check Republic and Slovakia), but also in Portugal and Denmark, the explained part is negative, signalling better labour market characteristics for women. On the other hand, in the majority of the western economies (Germany, Austria, United Kingdom, France, Netherlands and Finland, but also in Cyprus), the explained part is positive, indicating that men have better labour market characteristics than women.

Figure 1. Explained and unexplained gender wage gap in EU-28 countries (2010 and 2013)



Note: Our elaborations on EU-SILC data

Our results confirm previous findings on the differences between western economies and transition countries (see Avlijaš *et al.*, 2013, for an overview). While the unadjusted gender wage gap is relatively large in the west, a part of the gap can be explained by better labour market characteristics of men and the adjusted gap is lower than the unadjusted. On the other hand, in transition countries, the unadjusted gender wage gap is relatively smaller, but its *true* size is hidden by better female labour market characteristics, so the adjusted gap is higher than the unadjusted (see Table A1). The decomposition for Central and Eastern EU countries is different due to a large number of low-skilled female exits from the labour market during the transition, which increased

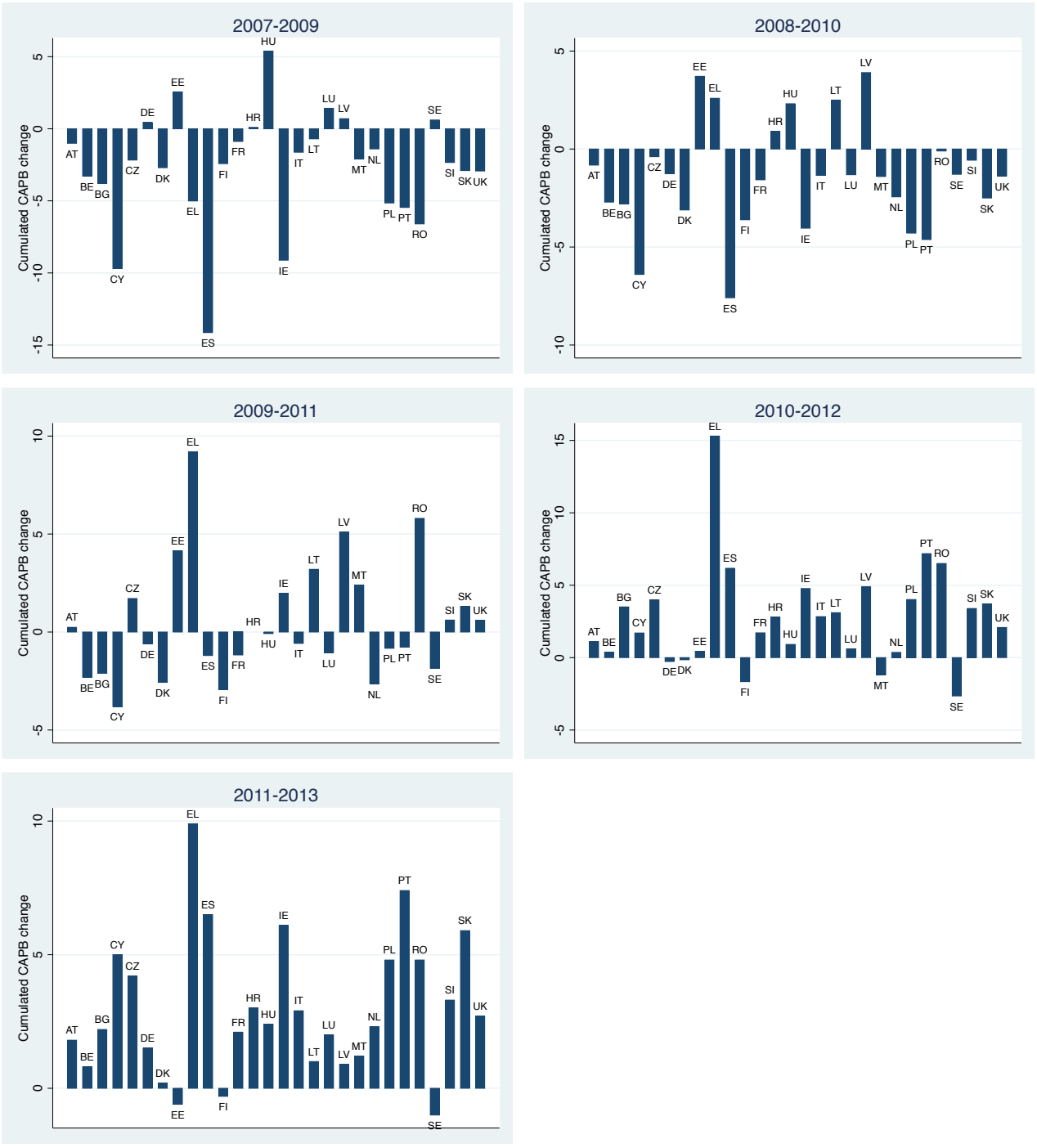
the average skill levels of employed women, therefore making them better skilled then employed men on average. As a consequence of the described differences in the components of the gap, in the majority of transition economies the adjusted gender wage gap is above average (Estonia, Latvia, Check Republic, Slovakia, Bulgaria, and Lithuania), while in the majority of the western economies the adjusted gap is below average (Germany, Austria, Netherlands, United Kingdom). Although the adjusted gaps also vary significantly across countries (from below 10 per cent in Greece, France and Luxemburg, to above 20 per cent in Estonia, Czech Republic and Cyprus), the differences are lower than for the unadjusted gap, indicating a converging impact of differences in characteristics (Figure 1 and Table A1 in Appendix).

Both the explained and the unexplained part of the gap can be further disaggregated into the contributions of individual predictors, as the total of each component is the sum of the individual contributions of the predictors (Jann, 2008). This piece f information is reported in the bottom part of Table 1. The negative sign of the explained part of the gap is the result of two groups of factors with opposing effects. The first one contains the labour market characteristics which are in favour of women. They, on average, work in better-paid occupations, have higher levels of education, and work more frequently as part-time workers (which is "better" as it is paid more in the terms of hourly wages). Additionally, employed women are on average older then employed men, which grants them higher wages due to longer working experience. The second group of factors consists of the characteristics that describe male advantages on the labour market. Men, on average, work in better-paid sectors, more frequently in larger companies, and are employed more on permanent contracts. The main driver of this advantage is for men the fact that they work more frequently in better-paid sectors. This difference, *ceteris paribus*, explains 13 per cent of the unadjusted wage gap (0.018 of 0.136, the total wage differential) and increases significantly over time: from 10.3 per cent (0.014 of 0.136) in 2010 to 15.3 per cent (0.021 of 0.137) in 2013, indicating that the impact of sectorial segregation on the gender wage gap became more pronounced.

3.3 Austerity in EU-28 and the gender wage gap: preliminary evidence

The geography of austerity in the years of the crisis in EU-28 countries is illustrated in Table A2 in the Appendix; the table describes the annual change of the cyclically adjusted primary balance (CAPB) over the period 2007–2013. Despite its limitations, discussed in section 3.1, the CAPB approach is able to provide a picture of austerity in Europe largely consistent with existing empirical evidence (see, for example, Rubery, 2015b; Addabbo et al., 2015; Theodoropoulou and Watt, 2011). According to these data, already starting from 2009, but especially in the following years, the majority of countries adopted fiscal consolidation measures. Particularly sharp reductions of government deficits were implemented in countries like Greece, Spain, Portugal, Ireland, Czech Republic, Romania, Latvia and Slovenia. On the opposite side, Finland and Sweden did not introduce any fiscal adjustments. Diagrams in Figure 2 report the cumulated change of the CAPB over three years period, from 2007 to 2013.

Figure 2. Austerity plans in Euro-28 countries, 2007-2013 (three years cumulative CAPB changes)

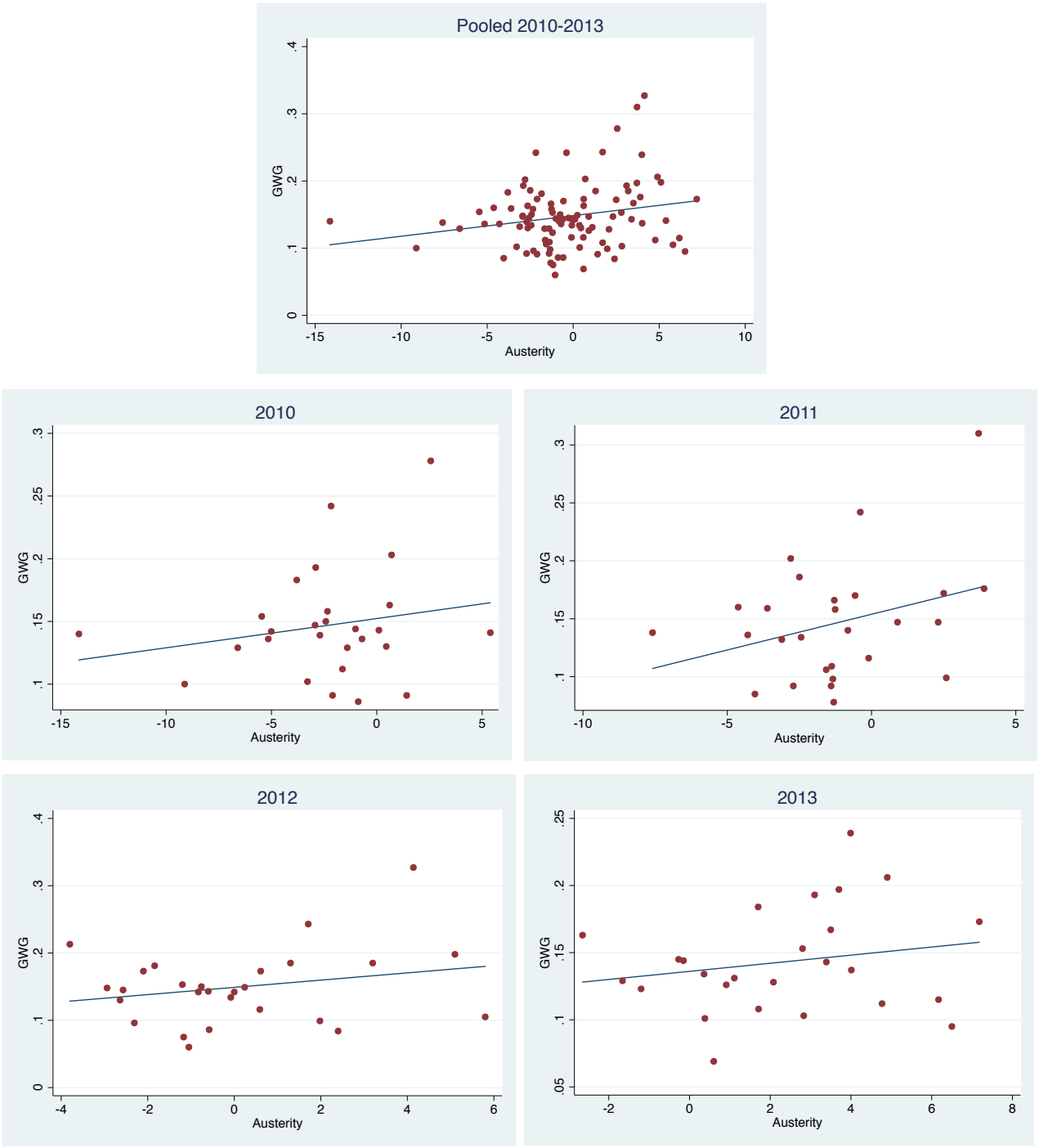


Note: Our elaborations on AMECO and OECD (2016) data

This measure, instead of the annual change, is able to provide a more illustrative picture of the implementation of fiscal adjustments; a reduction of government deficit in one year might be compensated (and therefore its effects partially neutralised) by a surplus in the following years. A cumulative index provides therefore a more robust identification of austerity measures of a structural nature. The diagrams in Figure 2 clearly show how the situation evolved over the period considered, with a growing number of countries moving towards the implementation of austerity measure, with the exceptions, already mentioned, of Finland and Sweden. All remaining EU

countries, sooner or later and to different extents, went into some government balance consolidation mechanisms.

Figure 3. Adjusted gender wage gap and austerity plans (three years cumulative CAPB lagged one year)



Note: Our elaborations on EU-SILC; AMECO and OECD (2016) data

Figure 3 provides a first snapshot on the existence of the relationship of interest in the paper. Each panel plots the relationship between adjusted gender wage gap in year *t* and the cumulative three years CAPB change lagged one year (to from *t-1* to *t-3*). As explained in detail in section 4.1, the use of lags for policy/institutional variables is a common practice in the literature and is motivated, among other things (e.g., potential risks of endogenity), by the fact that the effects

of policies/reforms are not immediate and take time to unfold. In all panels of Figure 3 a direct relation can be observed (as approximated by the interpolation line) between austerity and gender wage inequality, although the positive coefficient is statistically significant in only 2 years (out of four). The relationship depicted in the diagrams is by its nature inconclusive, since many country level factors, besides the potential role of austerity, could impact on the gender gap. For this reason, we have to go into some methodological refinements, described in the following section. Nonetheless, the results displayed in Figure 3 corroborate the idea of austerity being associated to a deterioration of gender equality.

4. The impact of austerity measures on the gender wage gap

4.1 Econometric methods and empirical model

In order to identify the impact of austerity measures on the gender wage gap, we start by estimating a wage equation, in which the log hourly wage (lhwage) is explained by a set of observable characteristics of the worker and of her/his employment position. The gender dummy (female = 1) provides, *ceteris paribus*, an estimate of the per cent residual gender earnings gap (Newell and Reilly, 2001; Perugini and Selezneva, 2015).

The microeconomic model of the determinants of wages relies on the human capital approach as the theoretical basis for the earnings function (Becker, 1964; Mincer, 1958). Higher labour incomes are therefore associated, first of all, to accumulated (formal) education. Other explanatory variables are: age, which is a proxy for experience and, as usual, is included in its quadratic term; permanent or temporary employment status; marital status; health status; urban/non-urban region of residence; second job; full-time job position; sector of employment; occupation; size of the firm. This wide range of information allows interpreting the gender dummy variable (female) as a measure of the discrimination effect due to gender, once all remaining (observable) characteristics are controlled for. This approach, as any other relying on a statistical residual, is exposed to the question as to whether all the necessary independent variables were included in the regression. If some factors are not measurable or not accountable for (say, job tenure) and for example men are better endowed than women with respect to these omitted variables, this would overestimate discrimination. Conversely, if some of the factors controlled for in such regressions, like occupation and industry of employment, themselves describe a form of discrimination, then it will be underestimated. However, as Blau and Kahn (2000) explain, results obtained using such approaches may nonetheless be instructive, if carefully interpreted in the awareness of the information included in the discrimination coefficient.

Pooling data for different countries originates a multilevel structure of data, in which observations at the individual level are nested within the country level. Relying on Bryan and Jenkins (2013), and as done in Perugini and Selezneva (2015), we opt here for a fixed effect (FE) estimation approach, i.e., pooling the country surveys and including distinct country (and year) intercepts. In the simplest, baseline case the individual effects are constrained to be equal across countries, but they can be allowed to differ between countries by interacting subsets of individual-level characteristics with the country dummies. The use of country fixed effects obviously prevents

the inclusion of additional country-level predictors in the empirical model, since the country intercepts already fully encapsulate cross-country differences (Snijders and Bosker, 1999). However, additional country level variables can be interacted with individual level variables, so to obtain the additional effect that a country level factor produces on the main (individual level) effect. This is what is needed for the purposes of our analysis, i.e., estimating the effects of austerity measures implemented at country level on the gender wage gap, and is done by interacting the (country level) *AUS* indicators with the gender dummy.

Equation 2 describes the empirical model used to estimate the adjusted gender wage gap and the impact of austerity in the pooled EU-28 (28 countries, 4 years) sample:

$$lhwage_{ik} = cons_{ik} + \alpha_n X_{ik} + \beta_1 female_{ik} + \beta_2 female_{ik} \cdot AUS_k + \tau east_k + u_k + \lambda_t + u_k \cdot \lambda_t + \upsilon_{ik} \qquad [2]$$

where subscripts *i*, *k* and *t* denote individuals, countries and years, respectively; u_k denotes country fixed effects, λ_t year fixed effects and their interaction controls for country/year specific factors. The dummy variable *east* is 1 for the former communist EU members and zero otherwise. X_{ik} is the regressor matrix and α_n the vector of associated coefficients. The coefficients β_1 and β_2 measure the adjusted gender wage gap and how austerity impacts on it. υ_{ik} is a mean-zero error term.

As customary in the literature (Bassanini *et al.*, 2009; Bourlès *et al.*, 2012), the policy/institutional variables (AUS in our case) are lagged in order to alleviate endogenity issues and to account for the fact that the implementation of policies/reforms take time to become effective. We therefore estimate equation 2 using the CAPB change lagged one, two and three years. In order to test whether a threshold effect exists (i.e., only changes large enough are able to produce visible effects), we also estimate equation 2 using as AUS a dummy variable (AUS_d) that is 1 if the annual change in CAPB exceeds 0.5% and 0 otherwise. Robustness checks are run for different thresholds (CAPB change >0 or >1%). Following Alesina *et al.* (2015) we also distinguish measures based on expenditure cuts or tax hikes. This is done by decomposing the CAPB dummy variable into two dummies (TB_AUS_d and EB_AUS_d), indicating whether the consolidation plan was (predominantly) tax based (TB) or expenditure based (EB). For each AUS_d=1, EB_AUS_d was coded 1 if the change in the cyclically adjusted structural expenditures (as a % of GDP) was higher than the change in the cyclically adjusted structural revenues, and 0 otherwise; TB_AUS_d was coded complementarily. Lastly, as done in section 3.3, we test for the possibility that fiscal consolidation plans (rather than one-year measures) could better describe the impact of austerity on the gender wage gap. We therefore build a cumulated CAPB variable (AUS_p – austerity plan) which, for year t, is obtained as the sum of the CAPB change in years *t-1*, *t-2* and *t-3* (variable named AUS_p_3_L1). For a robustness check we also use a similar variable but cumulating two years only (AUS_p_2_L1). As done for the annual CAPB changes, we transform these variables into dummies, coding them 1 if the cumulated CAPB exceeded 1% and zero otherwise (AUS_p_3_d_L1 and AUS_p_2_d_L1). Robustness checks were run for different thresholds (cumulated CAPB > 0.5% and > 1.5%). Again, we tested for the possible heterogeneous effects of austerity plans, constructing the

two corresponding dummy variables (TB_AUS_p_d and EB_AUS_p_d).

In order to investigate whether austerity measures impact on the horizontal dimension of gender inequality, we also estimated the relationship between fiscal consolidation and the probability of women to be employed in sectors with different wage levels. The choice of sectors (instead of occupations) is dictated by the fact that industries better reflect dynamics of horizontal segregation, being occupations at least partly the result of decisions related to education, personal characteristics and skills (rather then of a sectorial choice). In addition, as emerged in the BO decomposition presented in section 3.2, gender asymmetries in occupations do not explain the gender wage gap. On the contrary, sectorial segregation explains on average 13% of the wage gap, since men disproportionately work in better-paid sectors. From 2010 to 2013 this share increased from 10% to 15% (see section 3.2), which indicates that this dimension of gender inequality tends to be increasingly important.

To this aim, as a preliminary step, we re-ranked the thirteen sectors from the lowest to the highest average pay in each country/year. The thirteen ordered sectors have been rearranged into 5 ordered categories, so to have a balanced number of individuals[9]. This ordered variable - sector(v), ranging from 1 to 5 - is then used to estimate the following ordered logit model:

$$\sec tor(v)_{ik} = \alpha_n X_{ik} + \beta_1 female_{ik} + \beta_2 female_{ik} \cdot AUS_k + \tau east_k + u_k + \lambda_t + u_k \cdot \lambda_t + \upsilon_{ik} \qquad [3]$$

where symbols and variables correspond to those descripted in equation 2. However, since the variables related to job positions (occupations, second job, part-time, permanent employment, size of the firm) are to some extent a consequence of being employed in a given sector, we also run the same model excluding them from the set X_{ik}, in order to check the robustness of our results. As explained in Cameron and Trivedi (2010), the signs of the regression parameters in equation 3 can be immediately interpreted as determining whether the latent dependent variable increases with the regressor. A positive coefficient indicates that the associated regressor decreases the probability of belonging to the lowest category (sector 1) and increases the probability of belonging to the highest category (sector 5).

A last important empirical aspect that needs to be carefully addressed, already mentioned and dealt with in section 3.2, refers to the possible estimation bias due to sample selection. All our empirical models are therefore estimated using a Heckman (1979) correction. The first stage participation equation is estimated, as done for the Blinder-Oaxaca decomposition, adding to the personal characteristics used in equations 2 and 3, variables related to household size, the number of children (less than 3, 4-6 and 7-15 years old) and of elderly (65-74 and over 75 years old).

[9] Robustness checks were run reducing the number of ordered categories to 3 or keeping the 13 original ordered sectors.

4.2 Results

Tables 2, 3 and A3 in the Appendix report the estimates of the model described in equation 2; although not displayed, all models include sector and occupation dummies besides country, year and country/year fixed effects. Similarly, they all include the sample selection correction and are estimated pooling the 28 EU countries and the four years (2010-2013).

Table 2. The effects of austerity measures on the gender wage gap (yearly and cumulative CAPB changes)

	(1)		(2)		(3)		(4)		(5)		(6)	
Female	-0.163	***	-0.162	***	-0.164	***	-0.166	***	-0.163	***	-0.164	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Female*AUS_L1			-0.001	***								
			(0.001)									
Female*AUS_L2					-0.003	***						
					(0.001)							
Female*AUS_L3							-0.004	***				
							(0.001)					
Female* AUS_p_2_L1									-0.001	***		
									(0.000)			
Female*AUS_p_3_L1											-0.001	***
											(0.000)	
Married	0.030	***	0.030	***	0.030	***	0.030	***	0.030	***	0.030	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Age	0.224	***	0.219	***	0.224	***	0.223	***	0.223	***	0.223	***
	(0.006)		(0.006)		(0.006)		(0.006)		(0.006)		(0.006)	
Age2	-0.018	***	-0.017	***	-0.018	***	-0.018	***	-0.018	***	-0.018	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Health status	-0.015	***	-0.015	***	-0.015	***	-0.015	***	-0.015	***	-0.015	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Secondary Ed.	0.083	***	0.082	***	0.083	***	0.082	***	0.083	***	0.083	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Tertiary Ed.	0.216	***	0.214	***	0.216	***	0.215	***	0.216	***	0.216	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Full-time	-0.037	***	-0.036	***	-0.036	***	-0.037	***	-0.036	***	-0.036	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Second Job	-0.028	***	-0.029	***	-0.028	***	-0.028	***	-0.028	***	-0.028	***
	(0.010)		(0.010)		(0.010)		(0.010)		(0.010)		(0.010)	
Permanent	0.115	***	0.115	***	0.115	***	0.115	***	0.115	***	0.115	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Firm size (11-49)	0.064	***	0.063	***	0.064	***	0.064	***	0.064	***	0.064	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Firm size (over 50)	0.151	***	0.151	***	0.151	***	0.151	***	0.151	***	0.151	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Urban	0.037	***	0.036	***	0.037	***	0.037	***	0.036	***	0.036	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
East	-1.371	***	-1.370	***	-0.939	***	-1.364	***	-1.368	***	-1.366	***
	(0.012)		(0.012)		(0.011)		(0.012)		(0.012)		(0.012)	
Constant	1.925	***	1.937	***	1.491	***	1.918	***	1.924	***	1.921	***
	(0.017)		(0.017)		(0.017)		(0.017)		(0.017)		(0.017)	
Obs	677702		677702		677702		677702		677702		677702	
Adj. R-Squ	0.696		0.695		0.696		0.696		0.696		0.696	

*Note: All estimations include: sector, occupation, country, year and country*year dummies; sample selection correction. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 per cent level, respectively.*

A first remarkable piece of information emerging from the results is their overall strong stability to changes in explanatory (country level) variables. The baseline estimation in column 1 in Table 2 shows that the average (adjusted) gender wage gap in the pooled sample is 16.3%, which obviously corresponds to the figure reported in the first column of Table 1 (the unexplained part of the gender wage gap). The coefficients of the remaining explanatory variables largely correspond to ex-ante expectations and inform us that wages increase not linearly with age (the age variable has been divided by 10, so to have more readable coefficients), education, firm size and in urban areas; similarly, married individuals and those holding a permanent position earn more than their counterparts (*ceteris paribus*). In our sample, part-time jobs are associated to higher hourly labour compensation compared to full-time ones; this might be due to the fact that in part-time jobs the reduction in monthly wage is not proportional to the reduction in hours worked. As a consequence, on an hourly basis, part-time positions are better remunerated. This outcome is in contrast with the literature on productivity/wage penalty for part-time workers, but consistent with alternative empirical evidence showing that the difference tends to disappear once the effects of self-selection into different segments of the labour market and personal and job characteristics are controlled for (see, for example, Rodgers, 2004). Our outcomes also show that labour compensation for dependent work decreases as health status deteriorates as well as for those workers with a second job. The controls for occupations and sectors provide the expected hierarchy of coefficients (not reported for the sake of brevity, but available upon request). The dummy variable that identifies workers from central and eastern European countries has the expected negative, statistically significant coefficient.

As far as the focus of our analysis is concerned, columns 2-4 of Table 2 show that austerity measures implemented in years *t-1*, *t-2* and *t-3*, respectively, exacerbate gender wage inequality, with increasing momentum as time proceeds. For example, a 1% increase in CAPB in year *t-3* increases by 0.4% the gender wage gap in year *t*. A similar detrimental (and statistically significant) effect on gender equality is played by austerity plans (2/3 years cumulated CAPB changes lagged one year, columns 5-6). As a first robustness check, but also in order to investigate the possibility that a dichotomic measure of austerity might provide clearer results, we replace, in Table 3, the continuous measures of CAPB changes with the dummy variables AUS_d and AUS_p_d described in section 4.1. Results are in line with those shown in Table 2, i.e., austerity increases the gender gap, but the size of the effect is remarkably larger, especially when austerity is identified as a multi annual consolidation plan: a cumulative CAPB change larger than 1% in the preceding two (AUS_p_2_d_L1) and three (AUS_p_3_d_L1) years, increases the gender wage gap by 1.4% and 2.7%, respectively. This evidence not only supports the view of austerity exacerbating gender gap inequalities, but also indicates that sizable austerity plans are able to exert a conspicuous and increasing effect over time. Robustness checks carried out altering the threshold of the dummy variables (AUS_d > 0% and AUS_d >1% for the annual CAPB change; AUS_p_d > 0.5% and AUS_p_d > 1.5% for the cumulated CAPB change) confirm the outcomes reported in Table 3 (they are not reported here but are available upon request).

Table 3. The effects of austerity measures on the gender wage gap (yearly and cumulative CAPB changes as a dummy variable)

	(1)		(2)		(3)		(4)		(5)	
Female	-0.159	***	-0.158	***	-0.162	***	-0.159	***	-0.156	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Female*AUS_d_L1	-0.008	***								
	(0.002)									
Female*AUS_d_L2			-0.018	***						
			(0.002)							
Female*AUS_d_L3					-0.008	***				
					(0.002)					
Female* AUS_p_2_d_L1							-0.014	***		
							(0.002)			
Female*AUS_p_3_d_L1									-0.027	***
									(0.002)	
Married	0.030	***	0.030	***	0.030	***	0.030	***	0.029	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Age	0.224	***	0.224	***	0.224	***	0.224	***	0.224	***
	(0.006)		(0.006)		(0.006)		(0.006)		(0.006)	
Age2	-0.018	***	-0.018	***	-0.018	***	-0.018	***	-0.018	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Health status	-0.015	***	-0.015	***	-0.015	***	-0.015	***	-0.015	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Secondary Ed.	0.083	***	0.083	***	0.083	***	0.083	***	0.083	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Tertiary Ed.	0.216	***	0.216	***	0.216	***	0.216	***	0.216	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Full-time	-0.036	***	-0.036	***	-0.036	***	-0.036	***	-0.035	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Second Job	-0.028	***	-0.028	***	-0.028	***	-0.028	***	-0.028	***
	(0.010)		(0.010)		(0.010)		(0.010)		(0.010)	
Permanent	0.115	***	0.115	***	0.115	***	0.115	***	0.115	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Firm size (11-49)	0.064	***	0.064	***	0.064	***	0.064	***	0.064	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Firm size (over 50)	0.151	***	0.151	***	0.151	***	0.151	***	0.151	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Urban	0.037	***	0.037	***	0.037	***	0.037	***	0.037	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
East	-1.367	***	-1.371	***	-1.371	***	-1.371	***	-1.372	***
	(0.012)		(0.012)		(0.012)		(0.012)		(0.012)	
Constant	1.923	***	1.921	***	1.924	***	1.921	***	1.920	***
	(0.017)		(0.017)		(0.017)		(0.017)		(0.017)	
Obs	677702		677702		677702		677702		677702	
Adj. R-Squ	0.696		0.696		0.696		0.696		0.696	

*Note: All estimations include: sector, occupation, country, year and country*year dummies; sample selection correction. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 per cent level, respectively.*

In order to investigate whether there is a difference between the impact on gender wage gap of tax-based and expenditure-based austerity plans, in Table A3 in the appendix we replace the dummies used in Table 3 with those calculated separately on taxes and expenditures changes (TB_AUS_p_d and EB_AUS_p_d, see section 4.1). Outcomes confirm the detrimental role of austerity on gender equality (therefore confirming the robustness of our findings) and indicate that the effect of expenditures cuts tends to be larger than that of tax hikes (although their difference is statistically significant in only one case).

Table 4. Austerity plans and sectorial gender segregation

Dep. Var: sectors ordered by increasing average wage	(1)		(2)		(3)		(4)	
Female	-0.015	**	-0.013	**	-0.015	**	-0.013	**
	(0.006)		(0.006)		(0.006)		(0.006)	
Female*p_AUS_2_d_L1	-0.114	***						
	(0.009)							
Female*p_AUS_3_d_L1			-0.144	***				
			(0.010)					
Female*EB_AUS_p_2_d_L1					-0.177	***		
					(0.014)			
Female*TB_AUS_p_2_d_L1					-0.076	***		
					(0.011)			
Female*EB_AUS_p_3_d_L1							-0.162	***
							(0.018)	
Female*TB_AUS_p_3_d_L1							-0.137	***
							(0.011)	
Married	0.041	***	0.041	***	0.041	***	0.041	***
	(0.005)		(0.005)		(0.005)		(0.005)	
Age	0.561	***	0.559	***	0.561	***	0.559	***
	(0.027)		(0.027)		(0.027)		(0.027)	
Age2	-0.054	***	-0.054	***	-0.054	***	-0.054	***
	(0.003)		(0.003)		(0.003)		(0.003)	
Health status	0.033	***	0.033	***	0.033	***	0.033	***
	(0.003)		(0.003)		(0.003)		(0.003)	
Secondary Ed.	0.275	***	0.275	***	0.275	***	0.274	***
	(0.007)		(0.007)		(0.007)		(0.007)	
Tertiary Ed.	0.543	***	0.543	***	0.543	***	0.543	***
	(0.010)		(0.010)		(0.010)		(0.010)	
Full-time	0.069	***	0.072	***	0.071	***	0.073	***
	(0.008)		(0.008)		(0.008)		(0.008)	
Second Job	-0.155	***	-0.155	***	-0.155	***	-0.154	***
	(0.031)		(0.031)		(0.031)		(0.031)	
Permanent	-0.005		-0.005		-0.005		-0.005	
	(0.007)		(0.007)		(0.007)		(0.007)	
Firm size (11-49)	0.473	***	0.473	***	0.473	***	0.473	***
	(0.006)		(0.006)		(0.006)		(0.006)	
Firm size (over 50)	0.744	***	0.744	***	0.744	***	0.744	***
	(0.006)		(0.006)		(0.006)		(0.006)	
Urban	-0.037	***	-0.037	***	-0.037	***	-0.037	***
	(0.005)		(0.005)		(0.005)		(0.005)	
East	0.539	***	0.539	***	0.539	***	0.539	***
	(0.038)		(0.038)		(0.038)		(0.038)	
cut 1	1.137	***	1.135	***	1.137	***	1.135	***
	(0.070)		(0.070)		(0.070)		(0.070)	
cut 2	2.156	***	2.154	***	2.156	***	2.154	***
	(0.070)		(0.070)		(0.070)		(0.070)	
cut 3	3.189	***	3.188	***	3.190	***	3.188	***
	(0.071)		(0.070)		(0.071)		(0.070)	
cut 4	4.752	***	4.751	***	4.753	***	4.751	***
	(0.071)		(0.071)		(0.071)		(0.071)	
Test (Chi2) EB_AUS=TB_AUS					41.41	***	1.59	
Obs	677702		677702		677702		677702	
Pseudo R-Squ	0.0719		0.0719		0.0719		0.0719	

*Note: All estimations include country, year and country*year dummies; sample selection correction. Columns 2 and 4 also include occupation dummies. Robust standard errors in parenthesis. ***, ** and * denote significance at the 1, 5 and 10 per cent level, respectively*

Lastly, we investigate whether the implementation of austerity measures impacted on the probability of women to be employed in high-wage sectors. From the decomposition analysis presented in section 3.2 we learnt that sectorial employment segregation accounts, on average, for 13% of the unadjusted wage gap, hence a remarkable portion of gender wage disparities. Results reported in Table 4 (and A4 in he Appendix) refer to the estimation of equation 3 and employ as dependent variable the ordered categorical variable (ranging from 1 to 5) that identifies sectors with ascending average wage. Results confirm that women have a lower probability to be employed in high-pay sectors; in addition, they clearly suggest that the implementation of fiscal consolidation measures leads to a further decline of the chances of female workers to be employed in better-paid sectors. If we distinguish the nature of austerity measures/plans (column 3 and 4 of Table 4), the expenditure-based ones seem to exert a relatively more detrimental role on gender wage inequality, via sectorial employment segregation adverse to women. This outcome is soundly confirmed by the evidence presented in Table A4, which differs from Table 4 for the exclusion of job related control variables that might have captured some sectorial aspects. Further robustness checks have been carried out reducing the number of ordered sectors to three and increasing it to thirteen. Results, not displayed here but available upon request, univocally confirm that austerity further worsens the chances of women to be employed in high-paid sectors.

5. Discussion and final remarks

The principal aim of this study was to provide evidence on the relationship between the implementation of austerity measures and gender wage inequality. Whilst the existing literature offers a number of theoretical explanations as to how fiscal consolidation policies impacts asymmetrically on women, empirical evidence not limited to pure descriptive methods is still very scanty. Moreover, many studies focus on the effects of fiscal contractionary policies on quantitative labour market aspects such as female employment, unemployment and activity rates, whereas their consequences on gender wage discrimination and horizontal segregation remain largely unexplored. In this paper we tried to fill this gap by means of an empirical analysis employing EU-SILC microdata for the 28 EU member states in the period 2010-2013.

Our findings support, on different fronts, the idea of austerity being detrimental to gender equality. A first sound empirical evidence we found is that of a positive relationship between the implementation of austerity measures and gender wage inequality, after having accounted for workers and jobs characteristics; in other words, austerity favours pure discrimination practices. We explain this result in the more general framework of *statistical* discrimination, rather than as related to discriminatory tastes of employees, co-workers or customers (Becker, 1957). Statistical discrimination arises in the context of incomplete information when employers, in the absence of information on the individual counterparts, use group averages to predict skills and productivity of the individuals in the group (Phelps, 1972; Aigner and Cain, 1977). It is therefore a rational response to pay lower wages to individuals belonging to the group with higher heterogeneity in, or lower expected values of, productivity. In our conceptual framework, austerity measures might

have driven downwards employers' expectations on women productivity. The extensive budget cuts on the supply of care services, described in section 2, likely fed the expectation of lower availability, continuity and flexibility of female labour. Similarly, grater family care loads (for children and elderly), typically charged disproportionately on women, probably decreased their ability to provide the expected level of effort on the job. Also, austerity measures often took the form of cuts in pensions, limited or frozen access to early retirement and postponements of retirement age: such measures are likely to have aggravated the family workload on women, by reducing their reliance on grandparents for childcare.

Besides impacting directly on the pay that female workers are able to negotiate vis-à-vis the employer, these mechanisms might explain the exacerbation of horizontal segregation that emerged from our analysis. Our second main result is indeed that austerity reduced the already low (compared to men) probability of women to be employed in high-pay sectors. This indicates a deterioration of women's capacity to attain high-paid job positions in general, for which the presence of heavier family-related tasks poses relevant constraints. Jobs in high-pay sectors normally imply high flexibility and adaptability (time- and space-wise), but also high continuity on the job, necessary to accumulate specific experience that complements formal education (see Perugini and Pompei, 2016). The inability of women to supply such assets, in a context of decreasing provisions of family care services, may seriously impact on their capacity to compete with men in attaining such jobs.

The third important evidence we have obtained is that austerity impacts negatively on women equality not only when it is based on expenditure cuts, but also on tax hikes (although the effect tends to be quantitatively weaker). Higher taxation inevitably translates into lower individual and household disposable income. In a context of gender wage inequality and widespread budget cuts that generate an increasing need for unpaid family work, a reduction in household disposable income is likely to lead to a reinforcement of the male bread-winner model. The reduction of household disposable income might indeed drive the division of labour within the family in favour of the breadwinner (more frequently, the man) for the working time, while family care tasks being charged on lower income recipients (normally, the woman). These mechanisms might reinforce the patterns that feed the already describe weaknesses in women's bargaining power and job positions.

Our study is one of the first attempts to provide quantitative evidence on the adverse effects of austerity on gender wage equality. One priority on the research agenda is to update the analysis as soon as microdata for the most recent years (2014 and 2015) are rendered available. Our results clearly show that the effects of fiscal consolidation on gender gap take time to fully unfold; since the bulk of austerity measures was implemented in Europe after 2011, this means that further bad news is still to come. The implications of our results, if confirmed, would not be small. The ideology on which the desirability of austerity is based will at least need to add to the list of side effects the worsening of one of the most loathsome forms of inequality, that one based on gender. Similarly, for European policy makers wishing to promote development patterns balanced with equity concerns, the evidence presented here suggests that the way of public budget balance consolidation brings

along consequences on various sides of gender inequality, that can put at risk the little progress so far achieved.

APPENDIX

Table A1. Adjusted gender wage gap in EU-28 countries, 2010-2013

	Country	Obs.	2010	2011	2012	2013
AT	Austria	17827	0.144	0.14	0.149	0.131
BE	Belgium	17823	0.102	0.092	0.096	0.101
BG	Bulgaria	17896	0.183	0.202	0.173	0.167
CY	Cyprus	16168	0.260	0.249	0.213	0.184
CZ	Czech Republic	26381	0.242	0.242	0.243	0.239
DE	Germany	39421	0.13	0.158	0.143	0.145
DK	Denmark	19947	0.139	0.132	0.145	0.144
EE	Estonia	18625	0.278	0.31	0.327	0.313
EL	Greece	11434	0.142	0.099	0.088	0.057
ES	Spain	32202	0.140	0.138	0.153	0.115
FI	Finland	29865	0.150	0.159	0.148	0.129
FR	France	35742	0.086	0.106	0.075	0.108
HR	Croatia	14235	0.143	0.147	0.142	0.153
HU	Hungary	33236	0.141	0.147	0.134	0.126
IE	Ireland	11818	0.100	0.085	0.099	0.112
IT	Italy	47893	0.112	0.098	0.086	0.103
LT	Lithuania	15860	0.136	0.172	0.185	0.193
LU	Luxembourg	18335	0.091	0.078	0.060	0.069
LV	Latvia	17923	0.203	0.176	0.198	0.206
MT	Malta	13692	0.091	0.092	0.084	0.123
NL	Netherlands	37079	0.129	0.134	0.130	0.134
PL	Poland	37672	0.136	0.136	0.142	0.137
PT	Portugal	17811	0.154	0.16	0.150	0.173
RO	Romania	18488	0.129	0.116	0.105	0.095
SE	Sweden	23609	0.163	0.166	0.181	0.163
SI	Slovenia	35828	0.158	0.170	0.173	0.143
SK	Slovakia	22695	0.193	0.186	0.185	0.197
UK	United Kingdom	17827	0.147	0.109	0.116	0.128
	All	677702	*0.165*	*0.166*	*0.162*	*0.16*

Note: Our elaborations on EU-SILC; AMECO and OECD (2016) data; all coefficients significant at 1% level

Table A2. Austerity in EU-28 (yearly CAPB change), 2007-2013

Country		2007	2008	2009	2010	2011	2012	2013
AT	Austria	-0.37	-0.37	-0.27	-0.19	0.70	0.60	0.50
BE	Belgium	-0.60	-0.60	-2.09	-0.02	-0.20	0.60	0.40
BG	Bulgaria	0.00	0.00	-3.80	1.00	0.70	1.80	-0.30
CY	Cyprus	-2.70	-2.70	-4.30	0.60	-0.10	1.20	3.90
CZ	Czech Republic	-0.59	-0.59	-0.99	1.19	1.50	1.30	1.40
DE	Germany	0.04	0.04	0.37	-1.67	0.70	0.70	0.10
DK	Denmark	-0.24	-0.24	-2.22	-0.65	0.30	0.20	-0.30
EE	Estonia	-0.33	-0.33	3.21	0.83	0.10	-0.50	-0.20
EL	Greece	-1.40	-1.40	-2.21	6.20	5.20	3.90	0.80
ES	Spain	-5.19	-5.19	-3.77	1.37	1.20	3.60	1.70
FI	Finland	-0.47	-0.47	-1.48	-1.66	0.20	-0.20	-0.30
FR	France	0.60	0.60	-2.07	-0.09	1.00	0.80	0.30
HR	Croatia	-0.40	-0.40	0.90	0.40	-1.30	3.70	0.60
HU	Hungary	1.49	1.49	2.41	-1.59	-0.90	3.40	-0.10
IE	Ireland	-4.12	-4.12	-0.89	0.97	1.90	1.90	2.30
IT	Italy	-0.46	-0.46	-0.71	-0.17	0.30	2.70	-0.10
LT	Lithuania	-1.00	-1.00	1.30	2.20	-0.30	1.20	0.10
LU	Luxembourg	0.93	0.93	-0.44	-1.80	1.20	1.20	-0.40
LV	Latvia	-0.30	-0.30	1.30	2.90	0.90	1.10	-1.10
MT	Malta	-2.40	-2.40	2.70	-1.70	1.40	-0.90	0.70
NL	Netherlands	0.20	0.20	-1.80	-0.84	0.00	1.20	1.10
PL	Poland	-1.25	-1.25	-2.64	-0.39	2.20	2.20	0.40
PT	Portugal	-0.66	-0.66	-4.14	0.18	3.20	3.80	0.40
RO	Romania	-3.30	-3.30	0.00	3.20	2.60	0.70	1.50
SE	Sweden	-0.05	-0.05	0.72	-1.95	-0.60	-0.10	-0.30
SI	Slovenia	-1.18	-1.18	0.02	0.59	0.00	2.80	0.50
SK	Slovakia	-0.60	-0.60	-1.70	-0.20	3.20	0.70	2.00
UK	United Kingdom	-0.27	-0.27	-2.39	1.28	1.70	-0.90	1.90

Source: Database Ameco (2010 onwards) and our elaborations on Ameco database and OECD (2016) for 2007-2009

Table A3. The effects of tax based and expenditure based austerity measures on the gender wage gap (yearly and cumulative CAPB changes as a dummy variable)

	(1)		(2)		(3)		(4)		(5)	
Female	-0.159	***	-0.158	***	-0.162	***	-0.159	***	-0.156	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Female*EB_AUS_d_L1	-0.007	***								
	(0.003)									
Female*TB_AUS_d_L1	-0.009	***								
	(0.002)									
Female*EB_AUS_d_L2			-0.021	***						
			(0.003)							
Female*TB_AUS_d_L2			-0.017	***						
			(0.003)							
Female*EB_AUS_d_L3					-0.022	***				
					(0.003)					
Female*TB_AUS_d_L3					0.003					
					(0.003)					
Female*EB_AUS_p_2_d_L1							-0.016	***		
							(0.003)			
Female*TB_AUS_p_2_d_L1							-0.012	***		
							(0.002)			
Female*EB_AUS_p_3_d_L1									-0.026	***
									(0.004)	
Female*TB_AUS_p_3_d_L1									-0.027	***
									(0.002)	
Married	0.030	***	0.030	***	0.030	***	0.030	***	0.029	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Age	0.224	***	0.224	***	0.223	***	0.224	***	0.224	***
	(0.006)		(0.006)		(0.006)		(0.006)		(0.006)	
Age2	-0.018	***	-0.018	***	-0.018	***	-0.018	***	-0.018	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Health status	-0.015	***	-0.015	***	-0.015	***	-0.015	***	-0.015	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Secondary Ed.	0.083	***	0.083	***	0.083	***	0.083	***	0.083	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Tertiary Ed.	0.216	***	0.216	***	0.216	***	0.216	***	0.216	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Full-time	-0.036	***	-0.036	***	-0.036	***	-0.036	***	-0.035	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Second Job	-0.028	***	-0.028	***	-0.028	***	-0.028	***	-0.028	***
	(0.010)		(0.010)		(0.010)		(0.010)		(0.010)	
Permanent	0.115	***	0.115	***	0.115	***	0.115	***	0.115	***
	(0.002)		(0.002)		(0.002)		(0.002)		(0.002)	
Firm size (11-49)	0.064	***	0.064	***	0.064	***	0.064	***	0.064	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Firm size (over 50)	0.151	***	0.151	***	0.151	***	0.151	***	0.151	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Urban	0.037	***	0.037	***	0.037	***	0.037	***	0.037	***
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
East	-1.367	***	-1.371	***	-1.371	***	-1.371	***	-1.372	***
	(0.012)		(0.012)		(0.012)		(0.012)		(0.012)	
Constant	1.923	***	1.921	***	1.924	***	1.921	***	1.920	***
	(0.017)		(0.017)		(0.017)		(0.017)		(0.017)	
Test (F) EB_AUS=TB_AUS	0.59		1.11		31.55	***	1.39		0.03	
Obs	677702		677702		677702		677702		677702	
Adj. R-Squ	0.696		0.696		0.696		0.696		0.696	

*Note: All estimations include: sector, occupation, country, year and country*year dummies; sample selection correction. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 per cent level, respectively.*

Table A4. Austerity plans and sectorial gender segregation (no job variables)

Dep. Var: sectors ordered by increasing average wage	(1)		(2)		(3)		(4)	
Female	-0.050	***	-0.043	***	-0.050	***	-0.043	***
	(0.005)		(0.005)		(0.005)		(0.005)	
Female*AUS_p_2_d_L1	-0.067	***						
	(0.009)							
Female*AUS_p_3_d_L1			-0.103	***				
			(0.010)					
Female*EB_AUS_p_2_d_L1					-0.104	***		
					(0.014)			
Female*TB_AUS_p_2_d_L1					-0.045	***		
					(0.011)			
Female*EB_AUS_p_3_d_L1							-0.080	***
							(0.018)	
Female*TB_AUS_p_3_d_L1							-0.110	***
							(0.011)	
Married	0.043	***	0.043	***	0.043	***	0.043	***
	(0.005)		(0.005)		(0.005)		(0.005)	
Age	0.630	***	0.629	***	0.630	***	0.629	***
	(0.027)		(0.027)		(0.027)		(0.027)	
Age2	-0.056	***	-0.056	***	-0.056	***	-0.056	***
	(0.003)		(0.003)		(0.003)		(0.003)	
Health status	-0.044	***	-0.044	***	-0.044	***	-0.044	***
	(0.003)		(0.003)		(0.003)		(0.003)	
Secondary Ed.	0.433	***	0.433	***	0.433	***	0.433	***
	(0.007)		(0.007)		(0.007)		(0.007)	
Tertiary Ed.	1.390	***	1.390	***	1.390	***	1.390	***
	(0.009)		(0.009)		(0.009)		(0.009)	
Urban	0.049	***	0.049	***	0.049	***	0.049	***
	(0.005)		(0.005)		(0.005)		(0.005)	
East	0.430	***	0.431	***	0.430	***	0.431	***
	(0.036)		(0.036)		(0.036)		(0.036)	
cut 1	0.700	***	0.699	***	0.698	***	0.699	***
	(0.068)		(0.068)		(0.068)		(0.068)	
cut 2	1.642	***	1.642	***	1.641	***	1.642	***
	(0.068)		(0.068)		(0.068)		(0.068)	
cut 3	2.594	***	2.593	***	2.593	***	2.593	***
	(0.068)		(0.068)		(0.068)		(0.068)	
cut 4	4.050	***	4.050	***	4.049	***	4.049	***
	(0.068)		(0.068)		(0.068)		(0.068)	
Test (Chi2) EB_AUS=TB_AUS					14.03	***	2.36	
Obs	677702		677702		677702		677702	
Pseudo R-Squ	0.0352		0.0352		0.0352		0.0352	

*Note: All estimations include country, year and country*year dummies; sample selection correction. Columns 2 and 4 also include occupation dummies. Robust standard errors in parenthesis. ***, ** and * denote significance at the 1, 5 and 10 per cent level, respectively*

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